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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,710

06/22/2006

Kris V. Kumar

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08/17/2010

Diamond Innovations  
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EXAMINER

GRANT, ALVIN J

ART UNIT

PAPER NUMBER

3723

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08/17/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,710	<b>Applicant(s)</b> KUMAR ET AL.	
	<b>Examiner</b> ALVIN J. GRANT	<b>Art Unit</b> 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,10,12-14,18-22,31 and 36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 8, 10, 12-14, 18-22, 31 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. **Claims 1, 2, 4, 5, 8, 10, 12-14, 18-22, 31 and 36** provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 12/237,776. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed by the instant Application is covered by the claims of Application 12/237,776.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 2, 4, 5, 14, 19, 20 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Henmi et al. 4,989,375 in view of Clark, Jr. 3,653,161 and Tsukamoto et al. 4,716,687 considered separately; and in further view of Sheu et al. 5,025,547. Henmi et al. discloses a method of grinding a ferrous roll having a rotating roll surface **(7:31-37)** with a rotating grinding wheel **(10)**, the ferrous roll, the method steps

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including: mounting a grinding wheel on a machine spindle ; and bringing the rotating wheel into contact with a rotating roll surface and traversing the wheel across an axial roll length; and prohibiting thermal degradation **(8:16-28)**. Henmi does not specifically disclose setting the angle between the grinding wheel rotational axis and roll rotational axis less than about 25 degrees. Both Clark, Jr. and Tsukamoto et al. disclose a roll grinding apparatus having the angle between the grinding wheel rotational axis and roll rotational axis less than about 25 degrees so as to facilitate the efficiency of the grinding process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made Hemi et al.'s apparatus to have the angle between the grinding wheel rotational axis and roll rotational axis less than about 25 degrees as independently taught by Clark, Jr. and Tsukamoto et al. so as to facilitate the efficiency of the grinding process. It is noted that Henmi et al. does not specifically disclose maintaining a ratio of axial taper tolerance to radial wheel wear compensation of greater than 25 while maintaining a ratio of axial taper tolerance on wheel wear compensation of greater than 10. Henmi et al. however, discloses an equivalent approach that considers the wear of the wheel and compensation therefor; as well as the taper and the tolerance associated therewith. This equivalent approach also produced expected results. Henmi et al. does not specifically disclose a surface roughness of less than 5 microns. Sheu et al. discloses a roll grinding process **(Fig. 5)** that achieves a surface roughness of less than 3 micrometers so as to achieve a polished finish. It would have been obvious to one having ordinary skill in the art at the

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time the invention was made to have ground Hindi's roll to a surface finish of less than 3 micrometers as taught by Sheu et al. so as to achieve a polished finish.

**Claims 8, 10, 12, 13, 18 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Henmi et al.; and Clark, Jr. 3,653,161 and Tsukamoto et al. 4,716,687 considered separately, in view of Sheu et al.; and in further view of Mori et al. 6,306,007.

Hemi et al. as modified is described above. **Referring to claims 8-10 and 12**, the modified Henmi et al. does not specifically disclose a cubic boron nitride system having a vitreous bond. Mori et al. discloses a cubic boron nitride system having a vitreous bond so as provide effective grinding with the abrasive particles without scratching the surface of the workpiece. It would have been obvious to one having ordinary skill in the art at time the invention was made to have made the modified Henmi's apparatus out of cubic boron nitride having a vitreous bond as taught by Mori et al. so as provide effective grinding with the abrasive particles without scratching the surface of the workpiece.

**Referring to claim 13**, Henmi et al. does not specifically disclose the grinding wheel being rotated at 3600-12000 fpm. Mori et al. discloses a grinding wheel being rotated at 3600-12000 fpm so as to minimize the occurrence of chattering marks. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the modified Henmi's apparatus to rotate between 3600 and 12000 fpm so as to minimize the occurrence of chattering marks.

**Referring to claim 18**, Henmi does not disclose a grinding ratio of at least 20. Mori et

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al discloses a grinding ratio of at least 20 so as to prolong the grinding effort with a lightweight (CBN) wheel without adversely impacting the system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made Henmi et al.'s apparatus to have a G ratio of at least 20 as taught by Mori et al. so as to the grinding effort with a lightweight (CBN) wheel without adversely impacting the system.

**Referring to claims 21, 31 and 36**, Henmi et al. does not specifically disclose a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds. Mori et al. discloses a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds so as to provide the capability of optionally changing the grinding rate and optimizing the grinding process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made Henmi et al.'s apparatus to have the a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds so as to provide the capability of optionally changing the grinding rate and optimizing the grinding process.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 2, 4, 5, 8, 10, 12-14, 18-22, 31 and 36 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALVIN J. GRANT whose telephone number is (571)272-4484. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alvin J Grant/  
Examiner, Art Unit 3723



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